

REMARKS

In the Office Action dated June 28, 2005, the Examiner rejected then pending Claims 1, 3-7, 11 and 34-37 under 35 U.S.C. §102(e) or 35 U.S.C. §103(a).

In response, Applicants have hereby cancelled Claims 1, 3-7, 11 and 34-37 and added new Claims 38-45. Support for new Claims 38-45 is found in previous Claims 1, 3-4, 11, and 35-37 as well as in the specification. Claims 38-45 are currently pending in the present application.

New Claim 38, from which new Claims 42-45 depend, positively recites detection of either dissociation of binding between said nucleic acid molecule and the dye or inhibition of binding of the dye to said nucleic acid molecule as indicative of the presence of a toxicant. New Claims 39-41, from which new Claims 42-45 depend, are directed to detection methods premised on the binding between a nucleic acid and a dye, similar to claim 38.

In the June 28, 2005 Office Action, the Examiner contended that Applicant's claimed invention was unpatentable under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent 6,235,538 to Hanas (hereinafter "Hanas"). Specifically, the Examiner asserted that Hannas teaches contacting sample containing environmental toxicants with a binding partner of a template wherein the template could be nucleic acid, and that dissociation or inhibition of the binding of the binding partner to the nucleic acid template is indicative of the presence of the target environmental toxicant (see the Office Action, page 2, last paragraph, and page 3, first paragraph).

However, the binding partner of the nucleic acid as disclosed by Hanas is a zinc-finger protein (see Hanas, column 7, lines 39-40), not a dye. Nothing in Hanas teaches or suggests detection of either dissociation or inhibition of binding between a nucleic acid and dye.

as indicative of the presence of a toxicant, which is positively recited by Claims 38-45 of the present invention.

Therefore, Hanas does not anticipate Applicants' claimed invention as defined by Claims 38-45, and Applicants respectfully request the Examiner to withdraw the §102(e) rejection.

In the June 28, 2005 Office Action, the Examiner also contended that Applicant's claimed invention was unpatentable under 35 U.S.C. §103(a) as allegedly obvious over Hanas in view of U.S. Patent 5,552,280 to Urdea (hereinafter "Urdea").

However, the Urdea reference cannot remedy the above-described deficiency of the Hanas reference. Urdea only discloses in its background section the use of either a radioactive or a non-radioactive label for detecting nucleic acid hybridization (see Urdea, column 1, lines 23-26). The detection method disclosed by Urdea involves only association and dissociation between one single-stranded nucleic acid and another single-stranded nucleic acid, but not association or dissociation between a nucleic acid and a dye. As a matter of fact, the Urdea reference does not provide any basis for detecting either dissociation or inhibition of binding between a nucleic acid and dye as indicative of the presence of a toxicant, which is positively recited by Claims 38-45 of the present invention.

Therefore, Hanas and Urdea, either taking singularly or in combination, do not teach or even suggest Applicants' claimed invention, and there is absolutely no motivation to modify the teachings of the Hanas and Urdea for yielding Applicants' claimed invention.

In the June 28, 2005 Office Action, the Examiner further contended that Applicant's claimed invention was unpatentable under 35 U.S.C. §103(a) as allegedly obvious over Hanas in view of U.S. Patent 5,784,162 to Cabib (hereinafter "Cabib"). Specifically, the Examiner

asserted that Cabib teaches use of acridine orange, a fluorescent dye, as a fluorescent marker for detection purpose.

However, the Cabib reference does not disclose in any manner that the fluorescent dye, acridine orange, binds to a nucleic acid molecule; nor does it teach or suggest, either expressly or implicitly, that the presence of a toxicant can be indicated by detecting either dissociation or inhibition of binding between a fluorescent dye with a nucleic acid molecule, as positively recited by Claims 38-45 of the present application.

Therefore, the Cabib reference does not remedy the above-described deficiency of the Hanas reference, and Hanas and Cabib, either taking singularly or in combination, do not teach or even suggest Applicants' claimed invention.

In summary, Claims 38-45 as newly added herein patentably distinguish over all the cited references.

Accordingly, Applicants respectfully request the Examiner to issue a Notice of Allowance in favor of the pending Claims 38-45 of the present application.

Respectfully submitted,



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